

Twelve new species of the family Uloboridae (Arachnida: Araneae) from China

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Abstract — Twelve new species of the family Uloboridae are described from China under the names, *Hyptiotes fabaceus*, *H. solanus*, *Miagrammopes paraorientalis*, *Octonoba ampliata*, *O. aurita*, *O. dentata*, *O. digitata*, *O. paralingshanensis*, *O. paravarians*, *O. serrata*, *Philoponella lingulata* and *P. pisiformis*. A key to Chinese genera of the family Uloboridae is presented.

Key words — *Hyptiotes*, *Miagrammopes*, *Octonoba*, *Philoponella*, Uloboridae, new species, China

The family Uloboridae is a group of small to medium-sized (3–10 mm) spiders, lacking of poison gland, having a row of trichobothria on femora II through IV and a prominent ventral row of macrosetae beginning on the distal half to third of metatarsus IV and extending nearly the full length of tarsus IV. They are the only cribellate spiders which spin an orb-web. Both haplogyne and entelegyne uloborids have been discovered (Opell 1979).

The family Uloboridae is represented by 18 genera and more than 240 species (Platnick 2005) from the world, with the greatest diversity in tropical and subtropical regions. Two most influential revisional works worldwide are these by Lehtinen (1967) and Opell (1979). In China, the uloborids had been poorly investigated, since the first report of uloborid in the work “Farm Spiders (Song 1980)”. At present, six genera and 27 species of the family from China have been known (Song et al. 1999; Hu 2001; Dong et al. 2004; Zhang et al. 2004). “The Spiders of China (Song et al. 1999)” is the only monographic work including the family but no phylogenetic study of the family has been done. We examined mostly species hitherto recorded of the family from China for a further revision. As the first result of the study, this paper deals with 12 new species belonging to four genera of Chinese uloborids.

Holotypes and paratypes of the new species described in this paper are deposited in the collection of the College of Life Sciences, Hebei University, Baoding, China.

For the description in this paper following abbreviations are used: ALE, anterior lateral eye; AME, anterior median eye; AME-ALE, distance between AME and ALE; AME-AME, distance between AMEs; MOA, median ocular area; PLE, posterior lateral eye; PME, posterior median eye;

PME-PLE, distance between PME and PLE; PME-PME, distance between PMEs; c, conductor; mc, median conductor; lc, lateral conductor; cs, conductor spur; cbl, conductor basal lobe; ma, median apophysis of male palpal organ. [The terminology of the median apophysis and the conductor of uloborid palpus in this paper follow Coddington (1990)]. All measurements given are in mm.

Key to Chinese genera of the family Uloboridae

1. Anterior eyes absent, labium and endite at least twice as long as wide *Miagrammopes*
Anterior eyes present, labium and endite length equal to or less than 1.3 width 2
2. Anterior lateral eyes small and indistinct, conductor flattened, spermatheca absent and a thick-walled accessory gland present *Hyptiotes*
Anterior lateral eyes distinct, conductor hemispherical, spermatheca present 3
3. Median apophysis present, epigynum with a atrium or a pair of atria on dorsal side of posterior lobes 4
Median apophysis absent, epigynum without such atrium 5
4. Median apophysis long and flattened, epigynal posterior lobe with triangular sclerite *Zosis*
Median apophysis short, epigynal posterior lobe without triangular sclerite *Octonoba*
5. Anterior rim of conductor lobe with spur, epigynum with one ventral atrium *Philoponella*
Conductor lobe without spur, epigynum without atrium *Uloborus*

Genus *Hyptiotes* Walckenaer 1837

Hyptiotes Walckenaer 1837, p. 682; Lehtinen 1967, p. 240; Opell 1979, p. 490; Song et al. 1999, p. 81.

Notes. Erected by Walckenaer in 1837, originally assigned to Dysderides (Dysderidae). Removed to Theridiidae (Theridiidae) by Doleschal (1852), then to Agelenidae by Ausserer (1867). Simon (1892) transferred it to Uloboridae.

Type species. *Mithras paradoxus* C. L. Koch 1834.

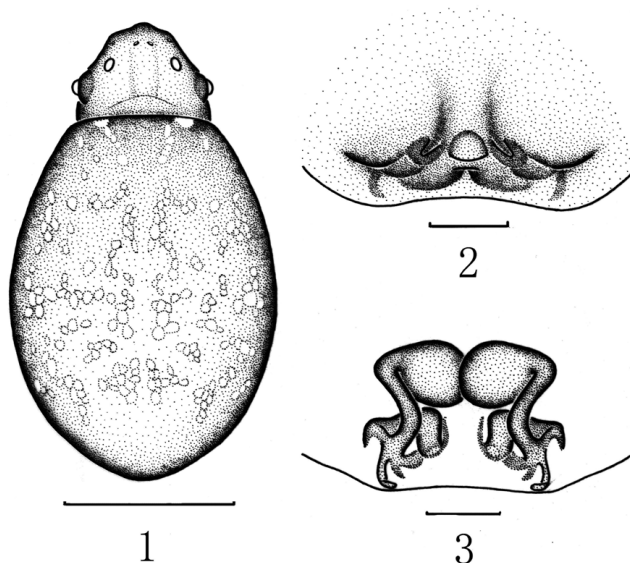
Diagnosis. *Hyptiotes* differs from all other genera by anterior half of carapace abruptly narrowed to half the width of the posterior part, anterior eye row nearly straight, distance between AME and anterior rim of carapace 3–6 diameters of AME, anterior width of MOA nearly one-fourth its posterior width, posterior part of carapace flat or depressed and sloped from pedicel to PLE, length of female first femur less than carapace length and equal to carapace length in male, and without spermatheca.

Species included. There are 13 known species in the world. Most of them are distributed in Asia, America and Europe (Platnick 2005). Three known species in China: *Hyptiotes affinis* Bösenberg & Strand 1906, *H. paradoxus* (C. L. Koch 1834), *H. xinglongensis* Liu et al. 1991 (Song et al. 1999). Two new species are presented in this work.

***Hyptiotes fabaceus* new species**

(Figs. 1–3)

Diagnosis. The new species resembles *Hyptiotes affinis*



Figs. 1–3. *Hyptiotes fabaceus* new species, ♀ holotype—1, carapace and abdomen, dorsal view; 2, epigynum, ventral view; 3, internal genitalia, dorsal view. (Scales for Fig. 1, 1 mm; for Figs. 2–3, 0.1 mm)

Bösenberg & Strand 1906 known from East Asia, but can be distinguished from the latter by 1) lacking a sclerotized groove in epigynal venter (present in *H. affinis*), and 2) having short connecting duct (long and coiled in *H. affinis*). This species also resembles *H. solanus* new species, but is distinguishable from it by 1) the epigynum without median posterior lobe (present in *H. solanus*), and 2) accessory gland bean-shaped (eggplant-shaped in *H. solanus*).

Description. Female (holotype): body length 3.18; cephalothorax 1.11 long, 1.17 wide; abdomen 2.49 long, 1.91 wide. Carapace puce and pear-shaped (Fig. 1). Anterior eye row almost straight, posterior eye row recurved. ALEs small and PLEs on tubercles separated from each other. AME-AME 0.03, AME-ALE, 0.20, PME-PME 0.43, PME-PLE 0.28. MOA 0.25 long, front 0.15 wide, back 0.60 wide. AME 0.05, PME 0.10, PLE 0.10. ALE very small. Clypeus 0.13 high. Chelicera yellowish brown; promargin of fang furrow with three teeth, retromargin with two teeth. Endites and labium yellowish brown. Sternum brown. Legs yellowish brown with macrosetae. Calamistrum four-fifths metatarsus IV. Measurements of legs [total (femur, patella & tibia, metatarsus, tarsus)]: I 2.39 (0.80, 0.74, 0.58, 0.27), II 2.01 (0.74, 0.53, 0.42, 0.32), III 1.69 (0.53, 0.53, 0.31, 0.32), IV 2.86 (0.90, 1.00, 0.64, 0.32). Genital organ as shown in Figs. 2–3: a sclerotized hood on the middle of epigynal venter, intromittent orifices beside it (Fig. 2); accessory gland bean-shaped (Fig. 3).

Type series. Holotype: ♀, and paratype: 1♀, Daozhen County (28°53'N, 107°36'E), Guizhou Province, 25 May 2004, Zhi-Sheng Zhang & Hui-Ming Chen leg. Paratype: 1♀, Tongdao County (26°10'N, 109°70'E), Hunan Province, 28 May 2002, Zhi-Sheng Zhang & Jin-Yu Yang leg.

Etymology. The specific name means “bean-shaped” in Latin and refers to the shape of accessory gland of female internal genitalia.

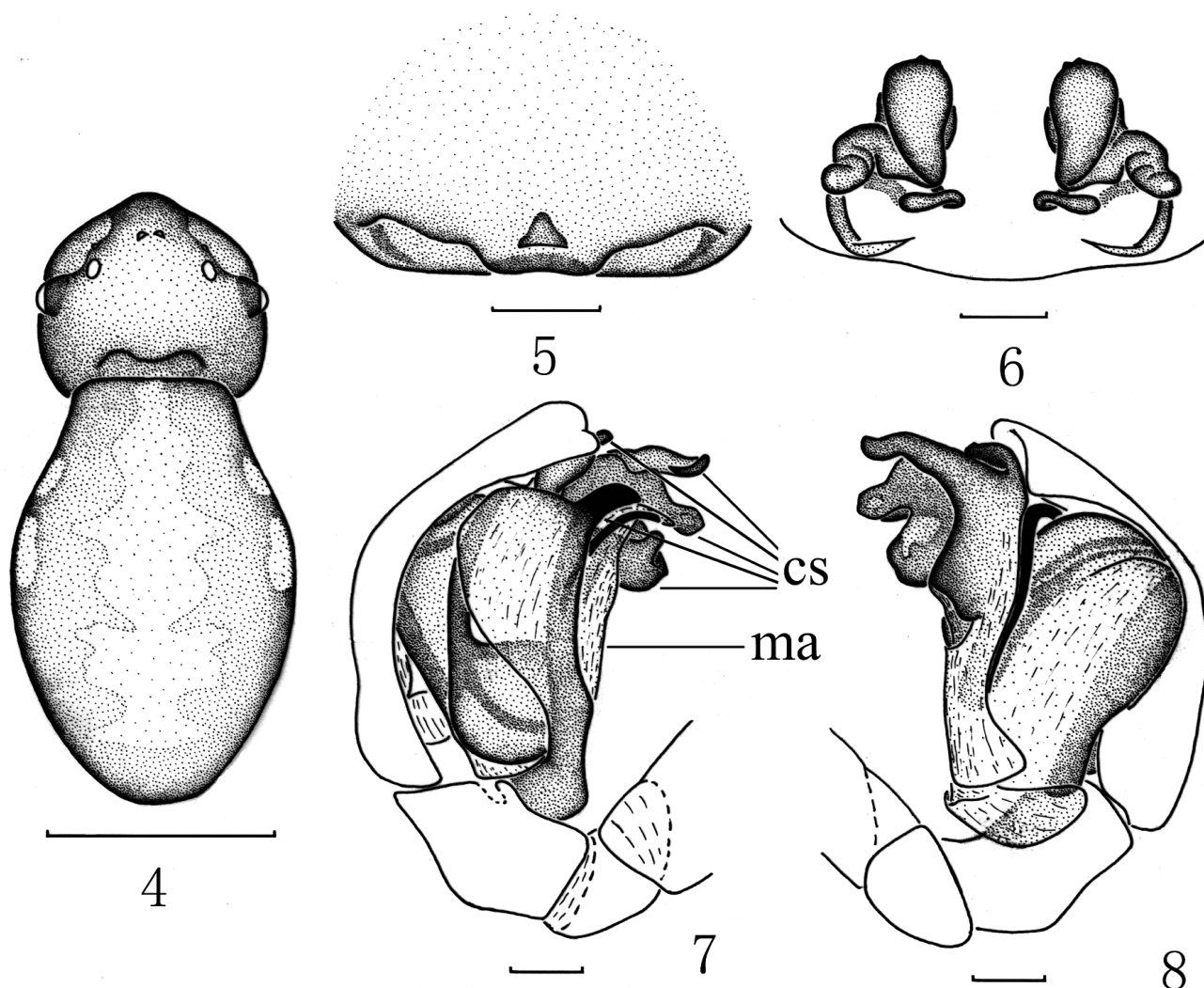
Distribution. China (Guizhou, Hunan).

***Hyptiotes solanus* new species**

(Figs. 4–8)

Diagnosis. The new species resembles *Hyptiotes affinis* Bösenberg & Strand 1906, but can be distinguished from the latter by 1) embolus thicker and embolus fundus visible (embolus thin and embolus fundus invisible in *H. affinis*), 2) accessory gland eggplant-shaped (spherical in *H. affinis*), and 3) connecting duct short (long and coiled in *H. affinis*). This species also resembles *H. fabaceus* new species, the discriminating characters being given under the diagnosis of *H. fabaceus*.

Description. Male (holotype): body length 2.70; cephalothorax 1.11 long, 1.11 wide; abdomen 1.80 long, 1.27 wide. Carapace brown. Anterior eye row almost straight, posterior eye row recurved. ALEs small and PLEs on tubercles separated from each other. AME-AME 0.03, AME-ALE 0.18, PME-PME 0.50, PME-PLE 0.23. MOA 0.25



Figs. 4–8. *Hyptiotes solanus* new species, ♂ holotype (4, 7–8) and ♀ paratype (5–6)— 4, carapace and abdomen, dorsal view; 5, epigynum, ventral view; 6, internal genitalia, dorsal view; 7–8, left palp, prolateral (7) and retrolateral (8) view. cs = conductor spur, ma = median apophysis. (Scales for Fig. 4, 1 mm; for Figs. 5–8, 0.1 mm)

long, front 0.15 wide, back 0.65 wide. AME 0.05, PME 0.10, PLE 0.10. ALE very small. Clypeus 0.20 high. Chelicera yellowish brown, anterior and posterior tooth absent. Endites, labium and sternum yellowish brown. Legs stout and yellowish brown with sparse macrosetae. Calamistrum three-fifths metatarsus IV. Measurements of legs: I 3.22 (1.05, 1.00, 0.80, 0.37), II 2.29 (0.80, 0.69, 0.48, 0.32), III 1.64 (0.58, 0.42, 0.37, 0.27), IV 2.55 (0.74, 0.90, 0.64, 0.27). Abdomen dorsum brown with white patches (Fig. 4). Palpal organ as shown in Figs. 7–8: tip of cymbium with an indentation; median apophysis flattened; embolus forming one and a half loops.

Female (paratype): body length 3.13; cephalothorax 1.22 long, 1.33 wide; abdomen 2.44 long, 1.80 wide. Carapace brown and pear-shaped. AME-AME 0.05, AME-ALE 0.40, PME-PME 0.70, PME-PLE 0.25. MOA 0.30 long, front 0.20 wide, back 0.90 wide. AME 0.08, PME 0.13, PLE 0.13. ALE very small. Clypeus 0.18 high. Chelicera with

teeth; promargin of fang furrow with one tooth, retromargin with two teeth. Legs without macrosetae. Calamistrum five-sevenths metatarsus IV. Measurements of legs: I 3.17 (1.06, 0.95, 0.74, 0.42), II 2.39 (0.85, 0.69, 0.48, 0.37), III 2.06 (0.58, 0.58, 0.53, 0.37), IV 3.55 (1.11, 1.22, 0.85, 0.37). Genital organ as shown in Figs. 5–6: a sclerotized hood on the middle of epigynal venter, intromittent orifices beside it (Fig. 5); accessory gland eggplant-shaped (Fig. 6).

Type series. Holotype: ♂, and paratype: 1♀, Daozhen County (28°53'N, 107°36'E), Guizhou Province, 25 May 2004, Zhi-Sheng Zhang & Hui-Ming Chen leg.

Etymology. The specific name, meaning “nightshade” in Latin, refers to the shape of accessory glands of female internal genitalia. “*Solanum*” is a generic name of nightshade.

Distribution. China (Guizhou).

Genus *Miagrammopes* O. Pickard-Cambridge 1869

Miagrammopes O. Pickard-Cambridge 1869, p. 401; Chickering 1968, p. 2; Opell 1979, p. 490; Opell 1984, p. 238; Song et al. 1999, p. 81.

Notes. Pickard-Cambridge (1869) established the family Miagrammopidae for the genus *Miagrammopes*, but later Simon (1892) treated it as a subfamily of Uloboridae. Lehtinen (1967) divided *Miagrammopes* into four genera, *Miagrammopes*, *Ranguma*, *Huanacauria*, and *Mumaia*, and Wunderlich (1976) described *Miagrammopsidis*. Opell (1984) considered *Ranguma*, *Huanacauria*, *Mumaia*, and *Miagrammopsidis* as synonyms of *Miagrammopes*.

Type species. *Miagrammopes thwaitesi* O. Pickard-Cambridge 1869.

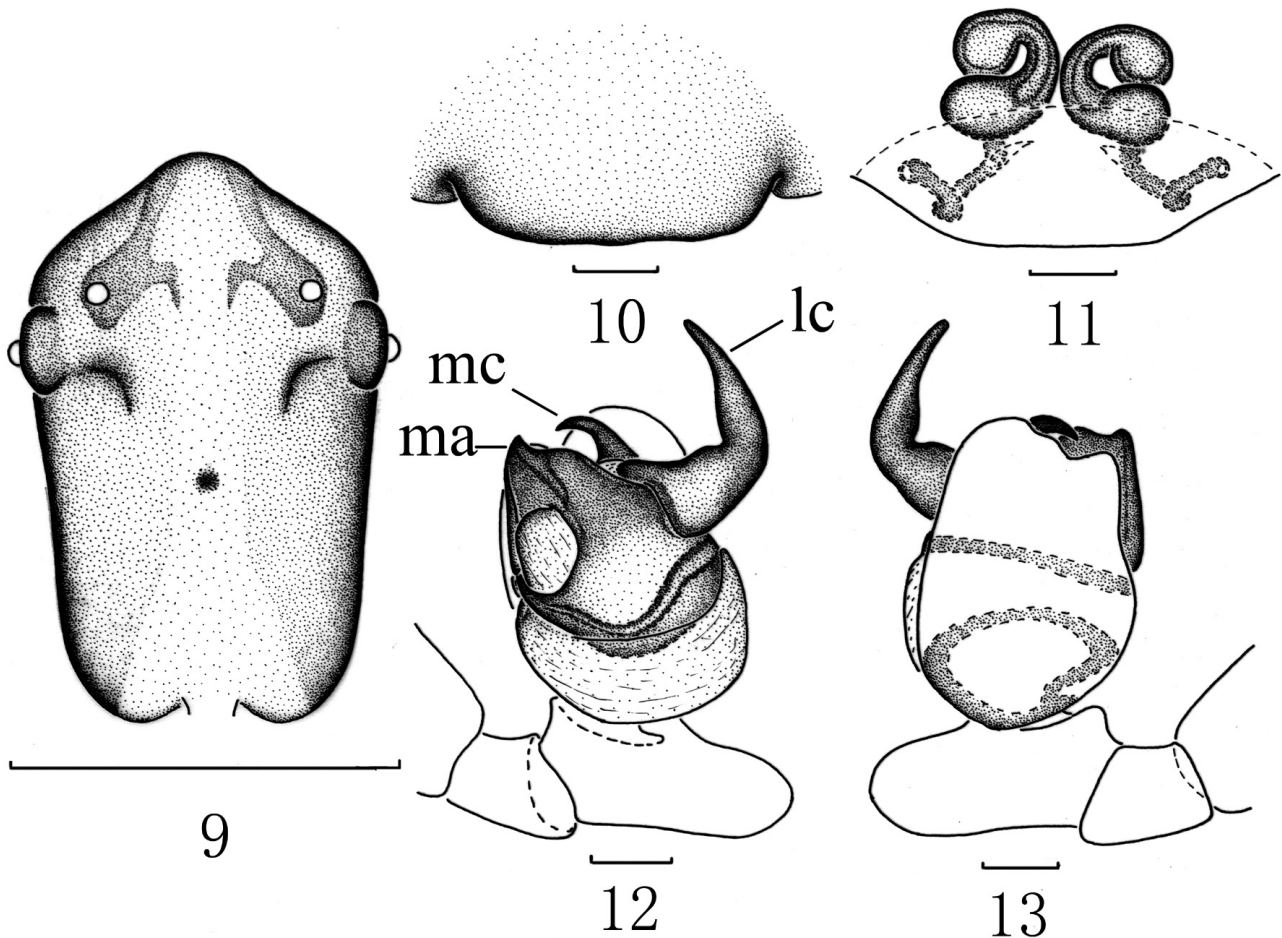
Diagnosis. *Miagrammopes* can be distinguished from all the other uloborid genera by lacking anterior eyes, length of labium and endites each twice as width, and sternum narrow and in many species divided into two or three plates by flexible transverse areas.

Species included. Around the world, a total of 67 known species are distributed in Asia, Africa, Australia, and America, in which 17 species in Asia (Platnick 2005). Five species have been recorded from China: *Miagrammopes bifurcatus* Dong et al. 2004, *M. oblongus* Yoshida 1982, *M. orientalis* Bösenberg & Strand 1906, *M. spatulatus* Dong et al. 2004 and *M. unguiformis* Dong et al. 2004 (Song et al. 1999; Dong et al. 2004). This paper adds a new species to the list.

***Miagrammopes paraorientalis* new species**
(Figs. 9–13)

Diagnosis. This new species resembles *Miagrammopes orientalis* Bösenberg & Strand 1906 known from East Asia, but differs from the latter by 1) tip of lateral conductor taper-shaped and median conductor claw-shaped (both spine-shaped in *M. orientalis*), 2) tip of median apophysis pointed (brunt in *M. orientalis*), and 3) prolateral bursa of spermatheca just on top of retrolateral bursa (two bursae widely separated in *M. orientalis*).

Description. Male (holotype): body length 4.77;



Figs. 9–13. *Miagrammopes paraorientalis* new species, ♂ holotype (9, 12–13) and ♀ paratype (10–11)— 9, carapace, dorsal view; 10, epigynum, ventral view; 11, internal genitalia, dorsal view; 12–13, left palp, ventral (12) and dorsal (13) view. ma = median apophysis, mc = median conductor, lc = lateral conductor. (Scales for Fig. 9, 1 mm; for Figs. 10–13, 0.1 mm)

cephalothorax 1.59 long, 1.00 wide; abdomen 3.07 long, 0.74 wide. Carapace approximately square and puce medially with a light brown scutellate patch (Fig. 9). PME-PME 0.48, PME-PLE, 0.27. PME 0.10, PLE 0.10. Chelicera yellowish brown, anterior and posterior tooth absent. Endites yellowish, labium light brown, anterior rim of labium pointed. Sternum puce, divided by thin, flexible, transverse regions into three plates between the second and the third coxae of legs and between the third and the fourth coxae of legs. Leg I stout with macrosetae, leg IV with a row of spatula-shaped setae from metatarsus to tarsus, without calamistrum. Measurements of legs: I 7.16 (2.33, 2.44, 1.86, 0.53), II 3.44 (1.27, 1.06, 0.80, 0.31), III 2.13 (0.48, 0.80, 0.53, 0.32), IV 3.77 (1.22, 1.59, 0.69, 0.27). Abdominal dorsum with three pairs of white patches. Palpal organ as shown in Figs. 12–13: tip of lateral conductor taper-shaped; median conductor claw-shaped; tip of median apophysis pointed; tip of cymbium with two indentations.

Female (paratype): body length 6.72–6.93; cephalothorax 2.00 long, 1.59 wide; abdomen 5.78 long, 1.75 wide. PME-PME 0.65, PME-PLE 0.38. PME 0.13, PLE 0.13. Chelicera with teeth; promargin and retromargin of fang furrows each with five teeth. Measurements of legs: I 10.07 (3.50, 3.39, 2.49, 0.69), II 5.04 (1.80, 1.54, 1.17, 0.53), III 3.49 (1.00, 1.11, 0.85, 0.53), IV 6.74 (2.12, 2.97, 1.17, 0.48). Genital organ as shown in Figs. 10–11: posterior rim of epigynum extending.

Type series. Holotype: ♂, Chongzuo City (22°16'N, 107°30'E), Guangxi Province, 20 August 2004, Ming-Sheng Zhu leg. Paratype: 1♀, Mt. Dawei, Liuyang City (28°06'N, 113°37'E), Hunan Province, July 2002, Shao-Hai Hu leg.

Etymology. The specific name (*para+orientalis*), meaning “duplication of *orientalis*”, refers that the shape of male palpal organ is similar to that of *Miagrammopes orientalis*.

Distribution. China (Guangxi).

Genus *Octonoba* Opell 1979

Octonoba Opell 1979, p. 512; Yoshida 1980, p. 58; Song et al. 1999, p. 81.

Notes. Lehtinen (1967) transferred *Uloborus sinensis* Simon 1880, *U. sybotides* Bösenberg & Strand 1906, *U. varians* Bösenberg & Strand 1906 and *U. yesoensis* (S. Saito 1934) to the genus *Zosis* Walckenaer 1842, and considered *U. octonarius* Muma 1945 as a synonym of *U. sinensis*. Opell (1979) erected the genus *Octonoba* for *U. octonarius* and didn't accept the synonym with *U. sinensis*. Yoshida (1980) transferred *U. sinensis*, *U. sybotides*, *U. varians* and *U. yesoensis* to *Octonoba* and agreed with the synonymy proposed by Lehtinen (1967).

Type species. *Uloborus octonarius* Muma 1945 (= *Uloborus sinensis* Simon 1880).

Diagnosis. In female, *Octonoba* are similar to *Zosis* and *Uloborus* in the shape of body and some characters of

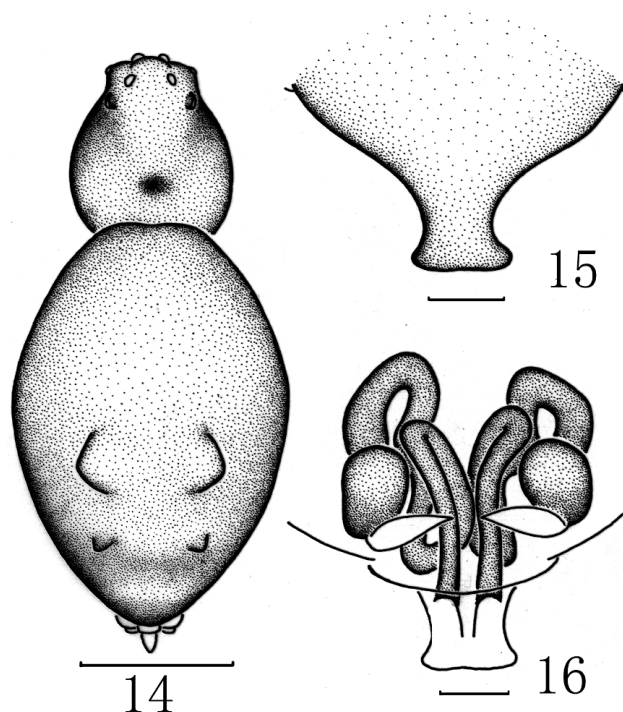
epigynum, but can be distinguished from *Zosis* by epigynal posterior lobe without triangular sclerite, and from *Uloborus* by a conspicuous atrium or a pair of atria dorsal to epigynal posterior lobes. In male, this genus is distinguished from other genera by having a U-shaped lateral conductor spur.

Species included. There are 19 species, known only in Asia except one species distributed in North America (Platnick 2005). A total of ten species have been known in China: *Octonoba basuensis* Hu 2001, *O. biforata* Zhu et al. 1989, *O. longshanensis* Xian et al. 1997, *O. sinensis* (Simon 1880), *O. spinosa* Yoshida 1982, *O. sybotides* (Bösenberg & Strand 1906), *O. taiwanica* Yoshida 1982, *O. varians* (Bösenberg & Strand 1906), *O. wanlessi* Zhang et al. 2004 and *O. yesoensis* (S. Saito 1934) (Song et al. 1999; Hu 2001; Zhang et al. 2004). This paper deals with seven new species. As a result of Chinese species of this genus will be 17.

Octonoba ampliata new species (Figs. 14–16)

Diagnosis. The new species resembles *Octonoba varians* (Bösenberg & Strand 1906) known from East Asia and *O. paravarians* new species in the shape of body, but can be distinguished from them by one epigynal posterior lobe thick and long with wide base (two small lobes in *O. varians* and *O. paravarians*).

Description. Female (holotype): body length 3.99;



Figs. 14–16. *Octonoba ampliata* new species, ♀ holotype— 14, carapace and abdomen, dorsal view; 15, epigynum, ventral view; 16, internal genitalia, dorsal view. (Scales for Fig. 14, 1 mm; for Figs. 15–16, 0.1 mm)

cephalothorax 1.37 long, 1.05 wide; abdomen 2.84 long, 1.79 wide. Carapace pear-shaped and puce (Fig. 14). Both eye rows recurved. AME-AME 0.08, AME-ALE 0.13, PME-PME 0.20, PME-PLE 0.13. MOA 0.58 long, front 0.25 wide, back 0.38 wide. AME 0.08, ALE 0.05, PME 0.10, PLE 0.10. Clypeus 0.13 high. Chelicera yellowish brown, anterior and posterior tooth absent. Endites and labium yellowish brown, sternum heart-shaped and light brown. Calamistrum three-fifths metatarsus IV. Measurements of legs: I 3.53 (1.00, 1.11, 1.00, 0.42), II 1.86 (0.53, 0.53, 0.48, 0.32), III 1.33 (0.37, 0.37, 0.32, 0.27), IV 2.20 (0.67, 0.74, 0.42, 0.37). Abdominal dorsum puce and oval, with four pairs of tubercles, the second and third ones conspicuous (Fig. 14). Genital organ as shown in Figs. 15–16: epigynal posterior lobe thick and long with large base (Fig. 15); spermatheca pear-shaped with long duct (Fig. 16).

Type specimen. Holotype: ♀, Wolong (31°29'N, 103°36'E), Sichuan Province, 19 July 2003, Jun-Xia Zhang leg.

Etymology. The specific name, meaning “longer” in Latin, refers to epigynal posterior lobe.

Distribution. China (Sichuan).

***Octonoba aurita* new species**
(Figs. 17–19)

Diagnosis. The new species resembles *Octonoba sinensis* (Simon 1880) known from East Asia and North America, *O. dentata* new species and *O. serratula* new species in the shape of body and spermatheca, but can be distinguished from them by 1) epigynal posterior lobes closer to each other (wide in *O. sinensis* and *O. dentata*, and indented

in *O. serratula*), and 2) connecting duct twice curving (straight in *O. sinensis*, *O. dentata* and *O. serratula*).

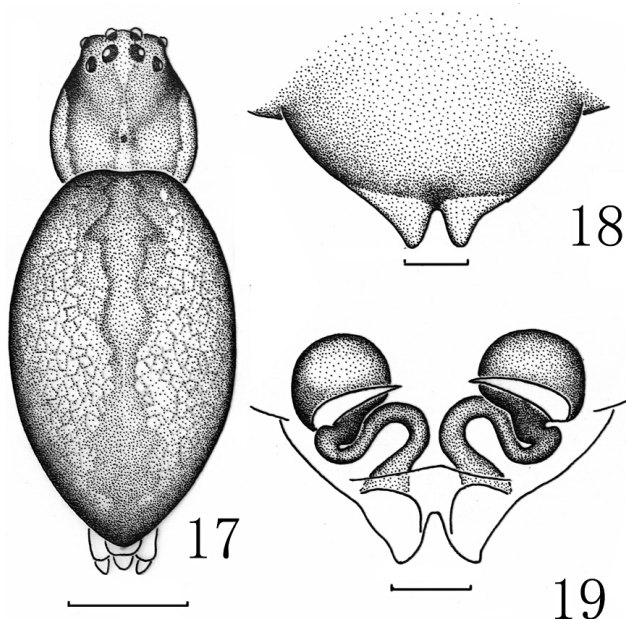
Description. Female (holotype): body length 4.73; cephalothorax 1.89 long, 1.26 wide; abdomen 3.47 long, 2.00 wide. Carapace pear-shaped, brown with lateral and mesal parts light brown (Fig. 17). Both eye rows recurved. AME-AME 0.13, AME-ALE 0.20, PME-PME 0.25, PME-PLE 0.18. MOA 0.30 long, front 0.28 wide, back 0.40 wide. AME 0.10, ALE 0.05, PME 0.10, PLE 0.08. Clypeus 0.10 high. Chelicera yellowish brown, anterior and posterior tooth absent. Endites and labium yellowish brown, sternum heart-shaped and light brown. Legs yellowish brown. Calamistrum three-fifths metatarsus IV. Measurements of legs: I 4.45 (1.27, 1.48, 1.17, 0.53), II 2.49 (0.74, 0.74, 0.64, 0.37), III 1.91 (0.58, 0.53, 0.48, 0.32), IV 2.82 (0.80, 0.90, 0.64, 0.48). Abdominal dorsum with inconspicuous four pairs of tubercles. Genital organ as shown in Figs. 18–19: epigynal posterior lobes forming two long ear-shaped projections (Fig. 18); spermatheca pear-shaped; connecting duct twice curving (Fig. 19).

Type specimen. Holotype: ♀, Dali City (25°36'N, 100°06'E), Yunnan Province, 29 April 2004, Zhi-Sheng Zhang leg.

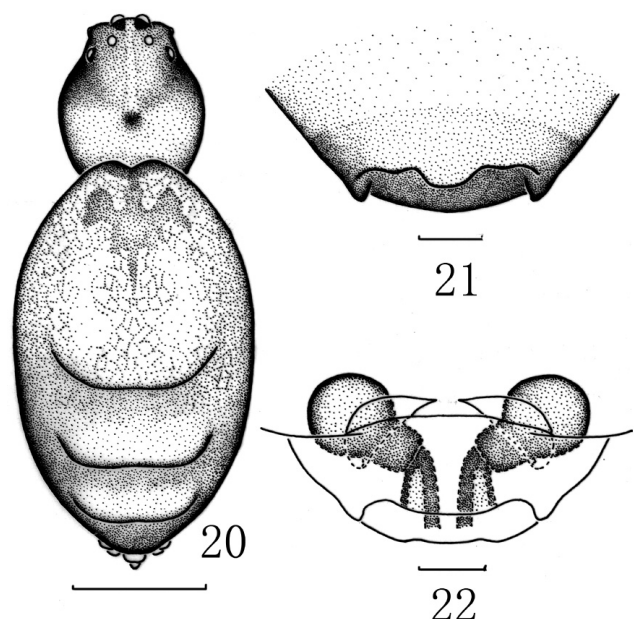
Etymology. The specific name is a Latin adjective meaning “long ear” and refers to the shape of epigynal posterior lobes.

Distribution. China (Yunnan).

***Octonoba dentata* new species**
(Figs. 20–22)



Figs. 17–19. *Octonoba aurita* new species, ♀ holotype— 17, carapace and abdomen, dorsal view; 18, epigynum, ventral view; 19, internal genitalia, dorsal view. (Scales for Fig. 17, 1 mm; for Figs. 18–19, 0.1 mm)



Figs. 20–22. *Octonoba dentata* new species, ♀ holotype— 20, carapace and abdomen, dorsal view; 21, epigynum, ventral view; 22, internal genitalia, dorsal view. (Scales for Fig. 20, 1 mm; for Figs. 21–22, 0.1 mm)

Diagnosis. The new species resembles *Octonoba sinensis* (Simon 1880) in the shape of spermatheca and connecting duct, but can be distinguished from the latter by anterior margin of epigynal atrium with indention (without indention in *O. sinensis*). This species also resembles *O. aurita* new species and *O. serratula* new species, but is distinguishable from them by the abdomen with three conspicuous tubercles (inconspicuous in *O. aurita* and *O. serratula*).

Description. Female (holotype): body length 4.24; cephalothorax 1.54 long, 1.11 wide; abdomen 3.13 long, 1.59 wide. Carapace pear-shaped and brown with one yellowish band mesally (Fig. 20). Both eye rows recurved. AME-AME 0.18, AME-ALE 0.10, PME-PME 0.23, PME-PL 0.13. MOA 0.25 long, front 0.28 wide, back 0.40 wide. AME 0.10, ALE 0.08, PME 0.10, PLE 0.10. Clypeus 0.13 high. Chelicera yellowish; promargin and retromargin of fang furrows each with three teeth. Endites and labium light brown, sternum heart-shaped and light brown. Legs light brown. Calamistrum eleven-twentieths metatarsus IV. Measurements of legs: I 6.78 (2.12, 2.28, 1.80, 0.58), II 4.18 (1.27, 1.33, 1.00, 0.58), III 3.27 (1.00, 0.95, 0.74, 0.58), IV 4.87 (1.48, 1.59, 1.06, 0.74). Abdominal dorsum with white patches, and three conspicuous and one inconspicuous posterior tubercles (Fig. 20); venter with a common atrium. Genital organ as shown in Figs. 21–22: epigynum with a wide atrium on posteroventral part and posterior lobes situated on lateral sides of the atrium (Fig. 21); spermatheca pear-shaped; connecting duct short (Fig. 22).

Type series. Holotype: ♀, and paratype: 1♀, Baotianman, Neixiang County (33°31'N, 111°55'E), Henan Province, 22 July 2004, Ming-Sheng Zhu leg.

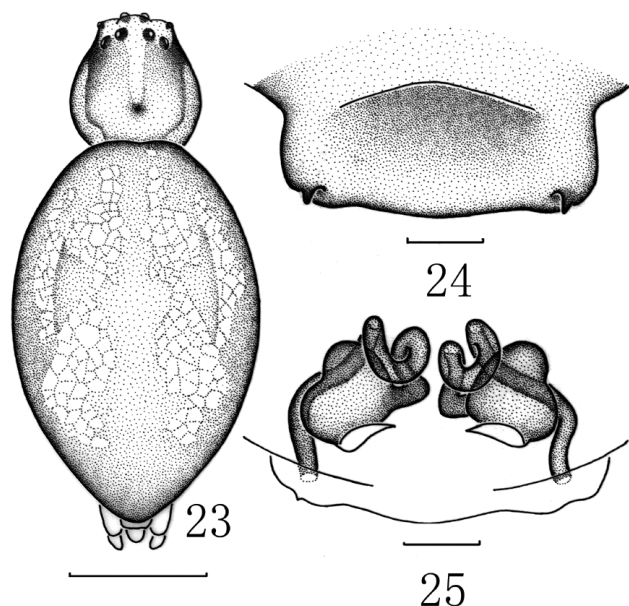
Etymology. The specific name, meaning “dentate” in Latin, refers to the shape of epigynal posterior lobes.

Distribution. China (Henan).

***Octonoba digitata* new species**
(Figs. 23–25)

Diagnosis. The new species resembles *Octonoba longshanensis* Xian et al. 1997 known from Hunan Province, China and *O. paralongshanensis* new species in the shape of body and spermatheca, but can be distinguished from them by 1) epigynal posterior lobes thin and short (thick in *O. longshanensis* and *O. paralongshanensis*), and 2) a small atrium posterior to each epigynal posterior lobe (large atrium in *O. longshanensis* and without atrium in *O. paralongshanensis*).

Description. Female (holotype): body length 3.82; cephalothorax 1.17 long, 1.00 wide; abdomen 2.76 long, 1.80 wide. Carapace brown with lateral and mesal parts light brown (Fig. 23). Both eye rows recurved. AME-AME 0.08, AME-ALE 0.15, PME-PME 0.18, PME-PL 0.10. MOA 0.20 long, front 0.23 wide, back 0.64 wide. AME 0.08, ALE 0.08, PME 0.08, PLE 0.05. Clypeus 0.03 high. Chelicera yellowish brown, anterior and posterior tooth absent. Endites and labium yellowish brown, sternum heart-



Figs. 23–25. *Octonoba digitata* new species, ♀ holotype— 23, carapace and abdomen, dorsal view; 24, epigynum, ventral view; 25, internal genitalia, dorsal view. (Scales for Fig. 23, 1 mm; for Figs. 24–25, 0.1 mm)

shaped and light brown. Legs yellowish brown. Calamistrum one-third metatarsus IV. Measurements of legs: I 6.53 (1.86, 2.12, 1.75, 0.80), II 3.55 (1.06, 1.06, 0.90, 0.53), III 2.43 (0.69, 0.74, 0.58, 0.42), IV 3.99 (1.17, 1.33, 0.85, 0.64). Abdominal dorsum with a large white patch and inconspicuous tubercles (Fig. 23). Genital organ as shown in Figs. 24–25: epigynal venter with a conspicuous wide depression; epigynal posterior lobes thin and short; a small atrium dorsal to each epigynal posterior lobe; each atrium with an intromittent orifice.

Type series. Holotype: ♀, Mt. Wuyi (26°54'N, 116°42'E), Fujian Province, 19 May 2004, Feng Zhang leg. Paratype: 1♀, Bashan County (31°02'N, 110°23'E), Hubei Province, 20 August 2003, Jun-Xia Zhang leg.

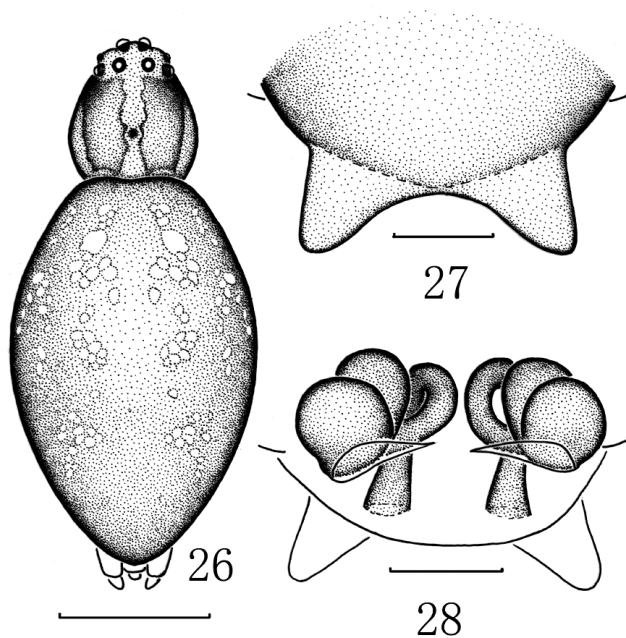
Etymology. The specific name is a Latin adjective meaning “presence of finger” and refers to the shape of epigynal lobes.

Distribution. China (Fujian, Hubei).

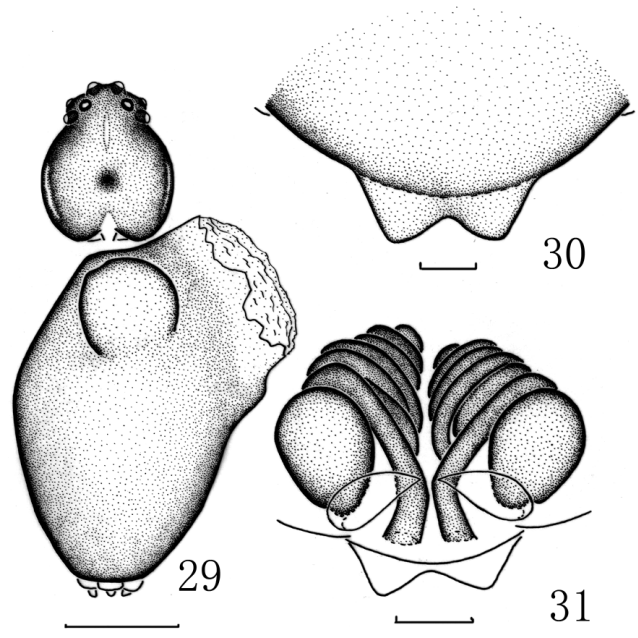
***Octonoba paralongshanensis* new species**
(Figs. 26–28)

Diagnosis. The new species resembles *Octonoba longshanensis* Xian et al. 1997 in the shape of body and spermatheca, but can be distinguished from the latter by connecting duct once curving (three times in *O. longshanensis*). This species also resembles *O. digitata* new species, the discriminating characters being given under the diagnosis of *O. digitata*.

Description. Female (holotype): body length 3.68; cephalothorax 1.16 long, 1.95 wide; abdomen 2.36 long,



Figs. 26–28. *Octonoba paralongshanensis* new species, ♀ holotype— 26, carapace and abdomen, dorsal view; 27, epigynum, ventral view; 28, internal genitalia, dorsal view. (Scales for Fig. 26, 1 mm; for Figs. 27–28, 0.1 mm)



Figs. 29–31. *Octonoba paravarians* new species, ♀ holotype — 29, carapace and abdomen, dorsal view; 30, epigynum, ventral view; 31, internal genitalia, dorsal view. (Scales for Fig. 29, 1 mm; for Figs. 30–31, 0.1 mm)

1.58 wide. Carapace pear-shaped, brown with lateral and mesal parts light brown (Fig. 26). Both eye rows recurved. AME-AME 0.13, AME-ALE 0.08, PME-PME 0.18, PME-PLP 0.13. MOA 0.23 long, front 0.25 wide, back 0.35 wide. AME 0.08, ALE 0.05, PME 0.08, PLE 0.08. Clypeus 0.13 high. Chelicera yellowish brown, anterior and posterior tooth absent. Endites and labium yellowish light brown, sternum heart-shaped and light brown. Legs light brown. Calamistrum two-fifths metatarsus IV. Measurements of legs: I 6.74 (1.96, 2.23, 1.75, 0.80), II 3.33 (1.00, 1.00, 0.80, 0.53), III 2.49 (0.74, 0.69, 0.58, 0.48), IV 3.93 (1.27, 1.33, 0.69, 0.64). Leg formula: 1, 4, 2, 3. Abdominal dorsum with white patches and inconspicuous four pairs of tubercles (Fig. 26). Genital organ as shown in Figs. 27–28: top of epigynal posterior lobes blunter (Fig. 27); spermatheca heart-shaped; connecting duct once curving (Fig. 28).

Type specimen. Holotype: ♀, Mt. Shiwan, Shangsi County (22°09'N, 107°58'E), Guangxi Province, 27–28 August 2004, Ming-Sheng Zhu leg.

Etymology. The specific name (*para*+*longshanensis*), meaning “duplication of *longshanensis*”, refers to the shape of body and spermatheca which are similar to those of *Octonoba longshanensis*.

Distribution. China (Guangxi).

***Octonoba paravarians* new species**
(Figs. 29–31)

Diagnosis. The new species resembles *Octonoba varians* (Bösenberg & Strand 1906) and *O. ampliata* new species,

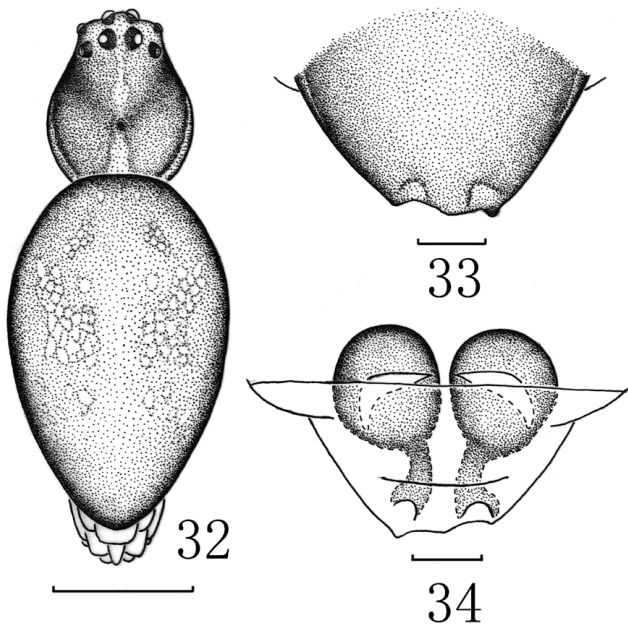
but can be distinguished from them by the connecting duct forming six or seven loops (less than two circles in *O. varians* and *O. ampliata*).

Description. Female (holotype): body length 3.26; cephalothorax 1.47 long, 1.05 wide; abdomen 2.36 long. Carapace pear-shaped and brown with one yellowish band mesally (Fig. 29). Both eye rows recurved. AME-AME 0.08, AME-ALE 0.13, PME-PME 0.20, PME-PLP 0.13. MOA 0.33 long, front 0.28 wide, back 0.38 wide. AME 0.13, ALE 0.08, PME 0.13, PLE 0.10. Clypeus 0.13 high. Chelicera yellowish brown, anterior and posterior tooth absent. Endites and labium puce, sternum heart-shaped and puce. Legs puce. Calamistrum one-second metatarsus IV. Measurements of legs: I 6.15 (1.75, 1.96, 1.64, 0.80), II 3.33 (1.00, 1.00, 0.80, 0.53), III 2.49 (0.74, 0.69, 0.58, 0.48), IV 3.93 (1.27, 1.33, 0.69, 0.64). Abdominal dorsum puce. Genital organ as shown in Figs. 30–31: top of epigynal posterior lobe blunt (Fig. 30); spermatheca spherical; connecting duct forming six or seven loops (Fig. 31).

Type specimen. Holotype: ♀, Daozhen County (28°08'N, 107°05'E), Guizhou Province, 25 May 2004, Zhi-Sheng Zhang & Hui-Ming Chen leg.

Etymology. The specific name (*para*+*varians*), meaning “duplication of *varians*”, refers that the shape of carapace is similar to that of *Octonoba varians*.

Distribution. China (Guizhou).



Figs. 32–34. *Octonoba serratula* new species, ♀ holotype—32, carapace and abdomen, dorsal view; 33, epigynum, ventral view; 34, internal genitalia, dorsal view. (Scales for Fig. 32, 1 mm; for Figs. 33–34, 0.1 mm)

***Octonoba serratula* new species**
(Figs. 32–34)

Diagnosis. The new species resembles *Octonoba sinensis* (Simon 1880) in dorsal view of female internal genitalia, but differs from the latter by having an epigynum with indented posterior lobes (two large in *O. sinensis*). This species also resembles *O. aurita* new species and *O. dentata* new species, but is distinguishable from *O. aurita* by having a spherical spermatheca and short connecting duct, and from *O. dentata* by the abdomen without conspicuous tubercles.

Description. Female (holotype): body length 3.99; cephalothorax 1.47 long, 1.16 wide; abdomen 3.05 long, 2.00 wide. Carapace pear-shaped and puce (Fig. 32). Both eye rows recurved. AME-AME 0.05, AME-ALE 0.13, PME-PME 0.15, PME-PLE 0.13. MOA 0.23 long, front 0.28 wide, back 0.35 wide. AME 0.10, ALE 0.08, PME 0.10, PLE 0.10. Clypeus 0.13 high. Chelicera yellowish; promargin of fang furrow with two teeth, retromargin with four teeth. Endites and labium puce, anterior rim of them yellowish, sternum heart-shaped and puce. Legs puce. Calamistrum nine- twentieths metatarsus IV. Measurements of legs: I 7.95 (2.07, 2.97, 1.91, 1.00), II 4.13 (1.27, 1.22, 1.00, 0.64), III 3.50 (1.43, 0.85, 0.69, 0.53), IV 4.77 (1.43, 1.54, 1.00, 0.80). Abdominal dorsum puce and oval, with two white patches and inconspicuous four pairs of tubercles (Fig. 32). Genital organ as shown in Figs. 33–34: epigynal posterior lobes indented (Fig. 33); spermatheca spherical; connecting duct short (Fig. 34).

Type specimen. Holotype: ♀, Mt. Wuyi (26°54'N, 116°

42'E), Fujian Province, 25 May 2004, Feng Zhang leg.

Etymology. The specific name, meaning “lacerated” in Latin, refers to the shape of epigynal posterior lobes.

Distribution. China (Fujian).

Genus *Philoponella* Mello-Leitão 1917

Philoponella Mello-Leitão 1917, p. 8; Lehtinen 1967, p. 256; Opell 1979, p. 490; Yoshida 1980, p. 62; Song et al. 1999, p. 84.

Notes. Mello-Leitão (1917) established the subgenus *Philoponella* under the genus *Uloborus*. Roewer (1954) considered it as a synonym of *Uloborus*. The name had not been recognized by other authors, until it was resurrected and was raised to generic rank by Lehtinen (1967).

Type species. *Uloborus republicanus* Simon 1891.

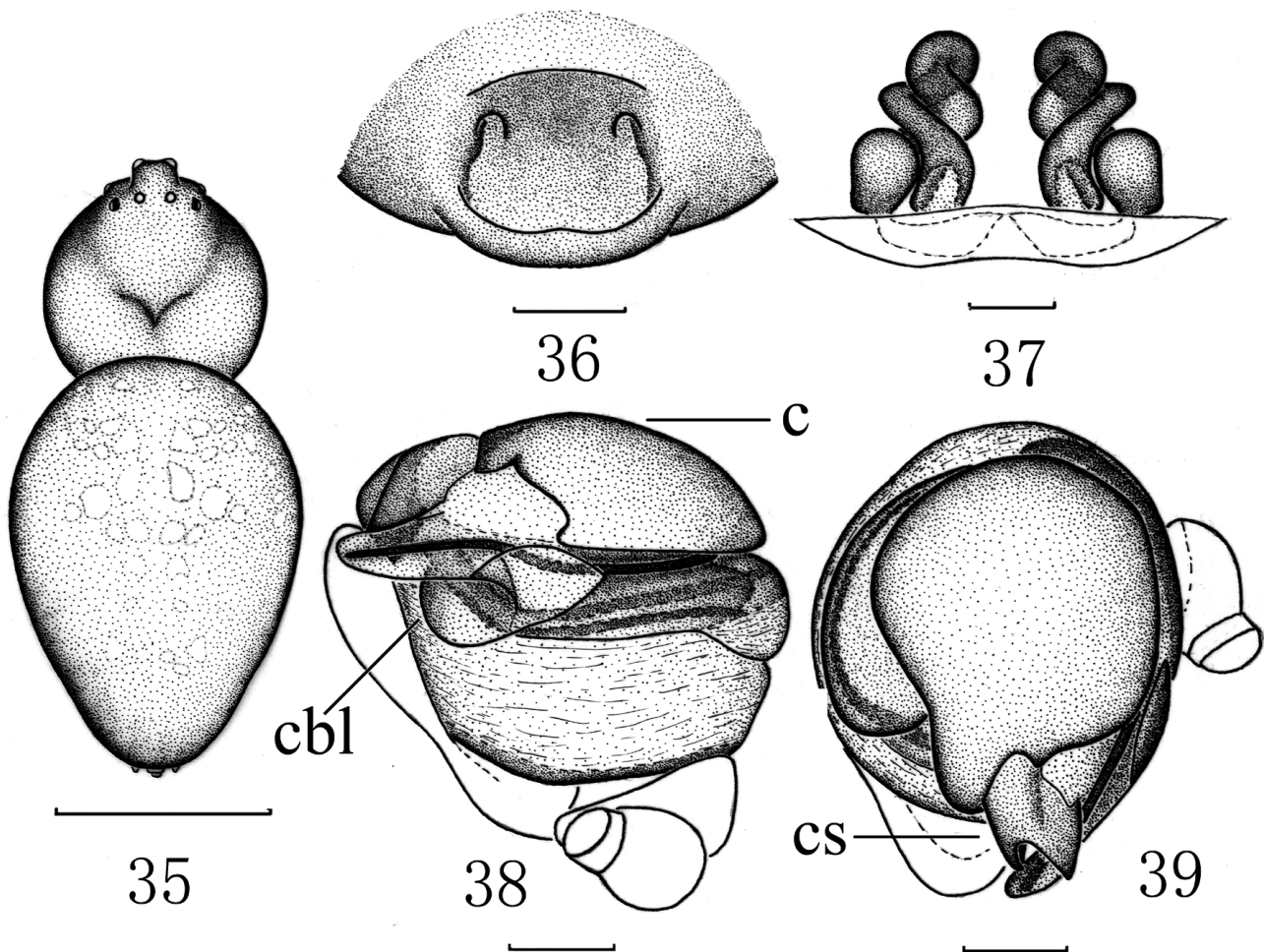
Diagnosis. *Philoponella* males are similar to those of *Zosis* in the shape of carapace, but differ from the latter by AMEs on a prominent tubercle, without median apophysis and with conductor basal lobe. Females of the genus can be distinguished from those of other uloborid genera by the presence of a sclerotized atrium which is located in the position anterior to posterior lobe of epigynum.

Species included. There are 35 known species around world, most of them being distributed in Asia and America (Platnick 2005). A total of five known species have been recorded in China: *Philoponella cymbiformis* Xian et al. 1997, *P. nigromaculata* Yoshida 1992, *P. wuyiensis* Xian et al. 1997, *P. nasuta* (Thorell 1895) and *P. prominens* (Bösenberg & Strand 1906) (Song et al. 1999). In this paper, two new species are described below. As a result of Chinese species of this genus will be seven.

***Philoponella lingulata* new species**
(Figs. 35–39)

Diagnosis. The new species resembles *Philoponella nasuta* (Thorell 1895) known from Southeast and East Asia, but can be distinguished from the latter by 1) conductor spur fork-shaped (spine-shaped in *P. nasuta*), 2) conductor basal lobe with a trough-shaped spur (without spur in *P. nasuta*), and 3) connecting duct inverse “8”- shaped (coiled in *P. nasuta*).

Description. Male: body length 2.92–2.97. One of males (holotype): body length 2.92; cephalothorax 1.19 long, 1.12 wide; abdomen 1.77 long, 1.29 wide. Carapace puce (Fig. 35). Anterior eye row recurved, posterior eye row almost straight. AME-AME 0.10, AME-ALE 0.13, PME-PME 0.48, PME-PLE 0.19. MOA 0.23 long, front 0.23 wide, back 0.20 wide. AME 0.08, ALE 0.05, PME 0.05, PLE 0.05. Chelicera yellowish brown. Legs with macrosetae, without calamistrum. Measurements of legs: I 5.39 (1.58, 1.83, 1.15, 0.83), II 3.30 (1.00, 1.00, 0.70, 0.60), III 2.53 (0.75, 0.73, 0.55, 0.50), IV 4.11 (1.25, 1.33, 0.83, 0.70). Abdominal dorsum oval, puce with white patches (Fig. 35);



Figs. 35–39. *Philoponella lingulata* new species, ♂ holotype (35, 38–39) and ♀ paratype (36–37)— 35, carapace and abdomen, dorsal view; 36, epigynum, ventral view; 37, internal genitalia, dorsal view; 38–39, left palpus, prolateral (38) and apical (39) view. c = conductor, cs = conductor spur, cbl = conductor basal lobe. (Scales for Fig. 35, 1 mm; for Figs. 36–39, 0.1 mm)

venter with a tubercle. Palpal organ as shown in Figs. 38–39: conductor spur fork-shaped; conductor basal lobe with a trough-shaped spur, embolus running along it.

Female (paratype): body length 3.26; cephalothorax 1.59 long, 1.17 wide; abdomen 3.07 long, 2.01 wide. Carapace pear-shaped. AME–AME 0.08, AME–ALE 0.10, PME–PME 0.13, PME–PLE 0.13. MOA 0.25 long, front 0.25 wide, back 0.23 wide. AME 0.10, ALE, 0.08, PME 0.08, PLE 0.08. Calamistrum four-sevenths metatarsus IV. Measurements of legs: I 5.39 (1.58, 1.83, 1.15, 0.83), II 3.30 (1.00, 1.00, 0.70, 0.60), III 2.53 (0.75, 0.73, 0.55, 0.50), IV 4.11 (1.25, 1.33, 0.83, 0.70). Abdominal dorsum puce with a conspicuous tubercle. Genital organ as shown in Figs. 36–37: lateral rims of epigynal atrium without indentation (Fig. 36); intromittent orifices at anterior part of epigynal atrium and separated by a distance equal to half of the atrium's width; spermatheca pear-shaped; connecting duct inverse “8”- shaped (Fig. 37).

Type series. Holotype: ♂, Mt. Cang, Dali City (25°36' N, 100°06' E), Yunnan Province, 13 April 2002, Zi-Zhong Yang leg. Paratypes: 1♂1♀, Mt. Cang, Dali City (25°36' N,

100°06' E), Yunnan Province, 2 October 2003, Wen-Yan Li leg.

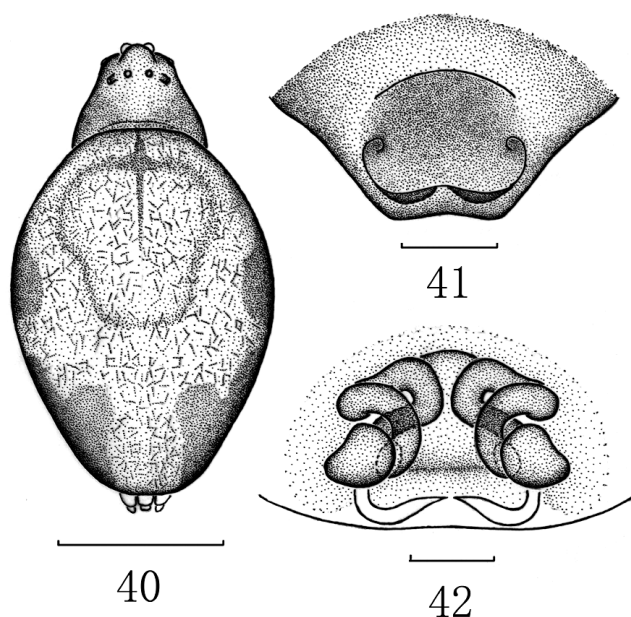
Etymology. The specific name, meaning “peninsular” in Latin, refers to the shape of anterior rim of conductor basal lobe.

Distribution. China (Yunnan).

***Philoponella pisiformis* new species**
(Figs. 40–42)

Diagnosis. The new species resembles *Philoponella fasciata* (Mello-Leitão 1917) (Opell 1979, p. 542, figs. 272–281) known from Brazil and Paraguay, but can be distinguished from the latter by 1) lateral rim of epigynal atrium without indentation (with indentation in *P. fasciata*), and 2) spermatheca fabaceous (oval in *P. fasciata*).

Description. Female: body length 2.90–2.97. One of females (holotype): body length 2.92; cephalothorax 1.17 long, 0.85 wide; abdomen 2.28 long, 1.59 wide. Carapace puce, pear-shaped (Fig. 40). Anterior eye row recurved, posterior eye row almost straight. AME–AME 0.08, AME–



Figs. 40–42. *Philoponella pisiformis* new species, ♀ holotype — 40, carapace and abdomen, dorsal view; 41, epigynum, ventral view; 42, internal genitalia, dorsal view. (Scales for Fig. 40, 1 mm; for Figs. 41–42, 0.1 mm)

ALE 0.13, PME-PME 0.08, PME-PLA 0.08. MOA 0.23 long, front 0.20 wide, back 0.23 wide. AME 0.08, ALE 0.05, PME 0.05, PLA 0.05. Chelicera yellowish brown. Legs yellowish brown, with sparse macrosetae. Calamistrum five-sevenths metatarsus IV. Measurements of legs: I 3.82 (1.06, 1.23, 0.95, 0.58), II 2.38 (0.69, 0.74, 0.53, 0.42), III 2.07 (0.64, 0.64, 0.42, 0.37), IV 2.97 (0.95, 0.75, 0.74, 0.53). Abdominal dorsum puce with a conspicuous tubercle (Fig. 40). Genital organ as shown in Figs. 41–42: lateral rims of epigynal atrium without indentation (Fig. 41); intromittent orifices at middle of epigynal atrium and separated by a distance almost equal to four-fifths atrium's width; spermatheca fabaceous; connecting duct with a loose loop (Fig. 42).

Type series. Holotype: ♀, Naning City (22°48'N, 108°19'E), Guangxi Province, 7 August 2000, Feng Zhang & Jun-Xian Zhang leg. Paratypes: 1♀, Xiachayu Town, Chayu County (28°38'N, 97°29'E), Sitsang Province, 2 August 2002, Ming-Sheng Zhu leg; 1♀, Lushui County (25°59'N, 98°49'E), Yunnan Province, 8 May 2004, Zhi-Sheng Zhang leg; 1♀, Tongmian Town, Ningming County (22°07'N, 107°03'E), Guangxi Province, 25 August 2004, Ming-Sheng Zhu leg.

Etymology. The specific name, meaning “pea-shaped” in Latin, refers to the shape of spermatheca.

Distribution. China (Guangxi, Sitsang, Yunnan).

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